IN THE CLAIMS:

Claim Summary

Claims 1, 7, 8, 12, 18, 19, 23, and 24 are amended. Claims 25 and 26 are new. Claims 2 and 13 are cancelled. For the Examiner's convenience, and in accordance with the revised amendment format of 37 C.F.R. § 1.121, a complete listing of the claims is set forth below with corresponding status identifiers for each claim.

Amended Claims
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1. (Currently Amended) A method for protecting digital
samples of content from illicit use by scrambling the
content, wherein each sample includes a plurality of bits,
ranging from least significant bits (LSBs) to most
significant bits (MSBs), comprising the steps of:

determining a dynamic range of each sample; and

adaptively selecting a number of LSBs to be scrambled
in each sample according to the dynamic range thereof;

scrambling a the selected number of LSBs in each
sample according to a scrambling key, while preserving a
number of MSBs in each sample, to provide corresponding
scrambled samples; wherein:

a the selected number of LSBs is scrambled in each
sample such that the scrambled samples are degraded but
still recognizable~~, and~~

~~in said scrambling step, the number of LSBs are
scrambled between different samples using inter-sample
scrambling~~.

2. (Cancelled).

3. (Original) The method of claim 1, wherein the samples
are provided in successive frames, comprising the further
step of:

adaptively selecting the number of LSBs to be
scrambled in each sample according to the frame thereof.

4. (Original) The method of claim 1, wherein:

said scrambling key is a pseudo-random scrambling key.

5. (Original) The method of claim 1, wherein:

in said scrambling step, the number of LSBs are scrambled within the same sample using intra-sample scrambling.

6. (Cancelled).

7. (Currently Amended) A method for protecting digital samples of content from illicit use by scrambling the content, wherein each sample includes a plurality of bits, ranging from least significant bits (LSBs) to most significant bits (MSBs), comprising the steps of:

determining a dynamic range of each sample; and

adaptively selecting a number of LSBs to be scrambled in each sample according to the dynamic range thereof;

scrambling a the selected number of LSBs in each sample according to a scrambling key, while preserving a number of MSBs in each sample, to provide corresponding scrambled samples; wherein:

a the selected number of LSBs is scrambled in each sample such that the scrambled samples are degraded but still recognizable; and

in said scrambling step, the selected number of LSBs are scrambled between different samples, and within the same sample, using inter-sample and intra-sample scrambling, respectively.

8. (Currently Amended) A method for protecting digital samples of content from illicit use by scrambling the content, wherein each sample includes a plurality of bits, ranging from least significant bits (LSBs) to most significant bits (MSBs), comprising the steps of:

determining a dynamic range of each sample; and

adaptively selecting a number of LSBs to be scrambled in each sample according to the dynamic range thereof;

scrambling a the selected number of LSBs in each sample according to a scrambling key, while preserving a number of MSBs in each sample, to provide corresponding scrambled samples; wherein:

a the selected number of LSBs is scrambled in each sample such that the scrambled samples are degraded but still recognizable; and

in said scrambling step, the selected number of LSBs are scrambled between different samples using horizontal inter-sample scrambling by interchanging bits having the same weight.

9. (Original) The method of claim 1, comprising the further step of:

embedding the scrambling key, at least in part, into the scrambled samples for use at a decoder in descrambling the scrambled samples.

10. (Original) The method of claim 9, wherein:

the scrambling key for a current frame of scrambled samples is embedded, at least in part, into a previous frame of samples.

11. (Original) The method of claim 9, wherein:

the scrambling key for a current frame of scrambled samples is embedded, at least in part, into a current frame of samples.

12. (Currently Amended) A method for descrambling previously scrambled digital samples of content, wherein each sample includes a plurality of bits, ranging from least significant bits (LSBs) to most significant bits (MSBs), comprising the steps of:

determining a dynamic range of each sample; and

adaptively selecting a number of LSBs to be descrambled in each sample according to the dynamic range thereof;

descrambling ~~a~~ the selected number of LSBs in each sample according to a scrambling key, while preserving a number of MSBs in each sample, to provide corresponding descrambled samples; wherein:

~~a~~ the selected number of LSBs is scrambled in each sample such that the scrambled samples are degraded but still recognizable~~, and~~

~~in said descrambling step, the number of LSBs are descrambled between different samples using inter-sample descrambling~~.

13. (Cancelled).

14. (Original) The method of claim 12, wherein the samples are provided in successive frames, comprising the further step of:

adaptively selecting the number of LSBs to be descrambled in each sample according to the frame thereof.

15. (Original) The method of claim 12, wherein:

said scrambling key is a pseudo-random scrambling key.

16. (Original) The method of claim 12, wherein:

in said descrambling step, the number of LSBs are descrambled within the same sample using intra-sample descrambling.

17. (Cancelled).

18. (Currently Amended) A method for descrambling previously scrambled digital samples of content, wherein each sample includes a plurality of bits, ranging from least significant bits (LSBs) to most significant bits (MSBs), comprising the steps of:

determining a dynamic range of each sample; and

adaptively selecting a number of LSBs to be descrambled in each sample according to the dynamic range thereof;

descrambling a the selected number of LSBs in each sample according to a scrambling key, while preserving a number of MSBs in each sample, to provide corresponding descrambled samples; wherein:

a the selected number of LSBs is scrambled in each
sample such that the scrambled samples are degraded but
still recognizable; and

in said descrambling step, the selected number of LSBs
are descrambled between different samples, and within the
same sample, using inter-sample and intra-sample
descrambling, respectively.

19. (Currently Amended) A method for descrambling
previously scrambled digital samples of content, wherein
each sample includes a plurality of bits, ranging from
least significant bits (LSBs) to most significant bits
(MSBs), comprising the steps of:

determining a dynamic range of each sample; and
adaptively selecting a number of LSBs to be
descrambled in each sample according to the dynamic range
thereof;

descrambling a the selected number of LSBs in each
sample according to a scrambling key, while preserving a
number of MSBs in each sample, to provide corresponding
descrambled samples; wherein:

a the selected number of LSBs is scrambled in each
sample such that the scrambled samples are degraded but
still recognizable; and

in said descrambling step, the selected number of LSBs
are descrambled between different samples using horizontal
inter-sample descrambling by interchanging bits having the
same weight.

20. (Original) The method of claim 12, wherein the scrambling key is embedded into the scrambled samples, comprising the further step of:

recovering the scrambling key from the scrambled samples for use in said descrambling step.

21. (Original) The method of claim 20, wherein:

the scrambling key for a current frame of scrambled samples is embedded into a previous frame of samples.

22. (Original) The method of claim 12, comprising the further steps of:

scrambling the scrambling key after descrambling the scrambled sample in said descrambling step.

23. (Currently Amended) An apparatus for protecting digital samples of content from illicit use by scrambling the content, wherein each sample includes a plurality of bits, ranging from least significant bits (LSBs) to most significant bits (MSBs), comprising:

a range detector/mask generator for determining a dynamic range of each sample and adaptively selecting a number of LSBs to be scrambled in each sample according to the dynamic range thereof;

a scrambler for scrambling a the selected number of LSBs in each sample according to a scrambling key, while preserving a number of MSBs in each sample, to provide corresponding scrambled samples; wherein:

~~a~~ the selected number of LSBs is scrambled in each sample such that the scrambled samples are degraded but still recognizable~~, and~~

~~in said scrambling step, the number of LSBs are scrambled between different samples using inter-sample scrambling.~~

24. (Currently Amended) An apparatus for descrambling previously scrambled digital samples of content, wherein each sample includes a plurality of bits, ranging from least significant bits (LSBs) to most significant bits (MSBs), comprising:

a range detector/mask generator for determining a dynamic range of each sample and adaptively selecting a number of LSBs to be descrambled in each sample according to the dynamic range thereof;

a descrambler for descrambling ~~a~~ the selected number of LSBs in each sample according to a scrambling key, while preserving a number of MSBs in each sample, to provide corresponding descrambled samples; wherein:

~~a~~ the selected number of LSBs is scrambled in each sample such that the scrambled samples are degraded but still recognizable~~, and~~

~~in said descrambling step, the number of LSBs are descrambled between different samples using inter-sample descrambling.~~

25. (NEW) A method in accordance with claim 1, wherein:

in said scrambling step, the number of LSBs are scrambled between different samples using inter-sample scrambling.

26. (NEW) A method in accordance with claim 12, wherein:

in said descrambling step, the number of LSBs are descrambled between different samples using inter-sample descrambling.